CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- Before this Amendment: Claims 1, 4, 5, 7, 8, 15, 18, 20, and 43-47

- After this Amendment: Claims 1, 4, 5, 7, 8, 15, 18, 20, and 43-47

Non-Elected, Canceled, or Withdrawn claims: None

Amended claims: Claim 1

New claims: None

This listing of claims will replace all prior versions, and listings, of claims in the Application.

Listing of Claims:

1. (Currently Amended) A method for concealing data within a digital audio signal, the method comprising:

receiving, at a computing device including a processor executing a watermark encoding system, a first data pattern of discrete values which are bits of a watermark and a second data pattern of discrete values which are bits of a covert message;

imposing, at the computing device, a discrete value of the second data pattern over one or more discrete values of the first data pattern to generate a third data pattern, wherein the imposing is carried out by performing a Boolean operation with a discrete value of the second data pattern and multiple discrete values of the first data pattern;

processing the digital audio signal into a series of bitframes at the computing device, wherein each bitframe includes a set of frames, and wherein each frame includes a set of blocks; and

encoding the third data pattern into the digital audio signal at the computing device, wherein a different bit of the watermark is encoded in each frame of at least one subject bitframe, and wherein same bit of the covert message is encoded in each frame of the subject bitframe, wherein the same bit

of the covert message is encoded in each frame of the subject bitframe at a different frequency with respect to each frame.

2-3. (Canceled)

4. (Previously Presented) A method as recited in claim 1, wherein the Boolean operation is XOR.

5. (Previously Presented) A method as recited in claim 1, wherein a pattern of discrete values may be encoded into the digital audio signal in one of multiple discrete states, and wherein the imposing comprises encoding one or more multiple values of the first data pattern into the digital audio signal into a state that indicates a single discrete value of the second data pattern.

6. (Canceled)

7. (Previously Presented) A method as recited in claim 1, wherein the different bit of the watermark which is encoded in a respective frame of the subject bitframe, is repeated in each block of the respective frame.

8. (Previously Presented) A computer having a computer-readable storage medium as recited in claim 1.

9-14. (Canceled)

15.   (Previously Presented) A method as recited in claim 5, wherein the multiple discrete states are positive or negative modifications to magnitudes of one or more subbands in a frequency spectrum of a sample of the digital audio signal.

16-17.   (Canceled)

18.   (Previously Presented) A computer-readable storage medium having computer-executable instructions that, when executed by a computer, perform a method for concealing data within a digital signal, the method comprising:

receiving a first data pattern of discrete values which are bits of a watermark and a second data pattern of discrete values which are bits of a covert message;

imposing a discrete value of the second data pattern over one or more discrete values of the first data pattern to generate a third data pattern, wherein the imposing is carried out by performing a Boolean operation with a discrete value of second data pattern and multiple discrete values of the first data pattern;

processing the digital signal into a series of bitframes, wherein each bitframe includes a set of frames, and wherein each frame includes a set of blocks; and

encoding the third data pattern into the digital signal, wherein a different bit of the watermark is encoded in each frame of at least one subject bitframe,

and wherein a same bit of the covert message is encoded in each frame of the subject bitframe, wherein the same bit of the covert message is encoded in each frame of the subject bitframe at a different frequency with respect to each frame.

19. (Canceled)

20. (Previously Presented) An apparatus comprising:

a processor;

a covert-channel-encoder executable on the processor to:

receive a first data pattern of discrete values which are bits of a watermark and a second data pattern of discrete values which are bits of a covert message;

impose a discrete value of the second data pattern over one or more discrete values of the first data pattern to generate a third data pattern, wherein the imposition is carried out by performing a Boolean operation with a discrete value of the second data pattern and multiple discrete values of the first data pattern;

process a digital signal into a series of bitframes, wherein each bitframe includes a set of frames, and wherein each frame includes a set of blocks; and

encode the third data pattern into the digital signal, wherein a different bit of the watermark is encoded in each frame of a plurality of bitframes of the digital signal, and wherein a same bit of the covert

message is encoded in each frame of a respective bitframe, wherein the same bit of the covert message is encoded in each frame of the respective bitframe at a different frequency with respect to each frame.

21-42. (Canceled)

43. (Previously Presented)   The computer-readable storage medium as recited in claim 18, wherein the digital signal is selected from a group consisting of a digital audio signal, a digital video signal, a digital image signal, and a digital multimedia signal.

44. (Previously Presented) The apparatus of claim 20, wherein the plurality of bitframes are arranged in a particular order.

45. (Previously Presented) The apparatus of claim 44, wherein the covert-channel encoder is executable on the processor to permute a respective set of values encoded in each of the plurality of bitframes such that the respective sets of values associated with the plurality of bitframes are arranged in a different order than the particular order of the plurality of bitframes.

46. (Previously Presented) The apparatus of claim 45, wherein the digital signal includes a digital audio signal, and wherein permuting the respective sets of values of the plurality of bitframes comprises permuting values of the

respective sets of values that are included in one or more particular sub-bands of frequencies within an audible spectrum.

47. (Previously Presented) The apparatus of claim 20, wherein the third data pattern is encoded into the digital signal without increasing bandwidth necessary to carry the digital signal.